

On page 8, beginning at line 17, please amend the paragraph as follows:

In accordance with [an embodiment of] the present invention, a method of forming a device with uniform and closely spaced quantum wires is provided. Figure 2a is an elevational cross-section view of a structure 200 that includes a substrate 12 with a patterned first oxide 14 disposed thereon. Patterned first oxide 14 is precisely spaced apart to allow crowding of quantum wires into a minimum area. In one embodiment, patterned first oxide 14 has a characteristic width, W, in a range from about 50 nm to about 200 nm, preferably about 100 nm. Patterned first oxide 14 has a characteristic pitch, P, in a range from about 150 nm to about 600 nm, preferably about 300 nm. Thus, where W is equal to a given width X, P is equal to a pitch 3X.

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#### **IN THE CLAIMS**

Please delete claim 14 without prejudice.

#### **REMARKS**

Applicant has carefully reviewed and considered the Office Action (the Office Action) mailed on May 21, 2002 and the references cited therewith.

Claim 14 has been deleted. As a result, claims 1-13, 15-28 and 39-47 are now pending in this application.

In this Amendment and Reply, the Applicant has responded by paragraph numbers set forth in the Office Action. From the previously filed Amendment and Reply filed on February 22, 2002, the Applicant incorporates all comments by reference for his response to any outstanding rejections for claims that remain pending.

#### **Rejections Under 35 U.S.C. § 112**

(Paragraphs 1, 2, and 11). Claims 19-21 and 26-28 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The Office Action reasons, “[i]t is claimed that an

etch results in an SOI structure, which is not clear how this is accomplished either in the claims or the specifications (sic). The Applicant respectfully traverses this rejection and requests the Office to consider the following.

The Applicant incorporates by reference the discussion previously filed on February 22, 2002. The claims are drawn to an SOI topology. When one etches an SOI structure, an SOI topology results. When the limitations of the claims are read by one of ordinary skill in the art, in concert with the specification, etching an SOI structure to form an SOI topology is enabled. Withdrawal of the rejections is respectfully requested.

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#### Objections Under 35 U.S.C. §132

The amendment was objected to.

(Paragraph 9A). The Applicant has withdrawn the amendment and returned the language to the form as originally filed.

(Paragraph 9B). The plurality of channels is supported by the specification. The quantum wire is also found in the specification. Neither amendment has added new matter. That a mere amendment is carried out, does not necessarily mean the specification has been broadened. The Office Action states a conclusion without support. The Office Action has failed to make a finding of fact and a conclusion of law. Withdrawal of the rejection is respectfully requested.

(Paragraph 9C). The Office Action is mistaken. The variables X, P, and W are not additional dimensional limitations. They were in the specification as filed. A mere restatement of them does not amount to new matter. The Office Action states a conclusion without support from factual assertions. The Office Action has failed to make a finding of fact and a conclusion of law. Withdrawal of the rejection is respectfully requested.

(Paragraph 9D). The amendment is a restatement of what is already inherently in the specification. No new matter has been added. The variable appears in independent claim 22 as originally filed. There is sufficient antecedent basis for the variable X. The variable X is not an additional variable. Withdrawal of the rejection is respectfully requested.

(Paragraph 9E). The Office Action is mistaken. The phrase as added in the amendment is fully in context with the two sentences that lie on either side. The first sentence begins with "Second nitride spacer mask 28 may be of any aspect ratio . . . ." The immediate subsequent sentence begins with "Examples of the aspect ratio range . . .", and the range is different and outside the range stated for the quantum wire mentioned earlier in the paragraph. Thereafter, the immediate subsequent sentence continues to discuss the second nitride spacer mask 28: "Preferably, the second nitride spacer mask 28 . . ." and then again an aspect ratio is recited that is different and outside the aspect ratio range for the quantum wire, but it is consistent with and within the first-disclosed aspect ratio range. Withdrawal of the rejection is respectfully requested.

(Paragraph 9F). The Applicant respectfully disagrees. The specification at page 6, lines 6-7 states that "like structures will be provided with the reference designations." Item 40 in Figure 7 is a gate oxide layer and has its support in Figure 7, and Figure 5 and the text supporting Figure 5 at page 12, lines 1-2. Withdrawal of the rejection is respectfully requested.

(Paragraph 9G). The Applicant has reversed the amendment and this rejection is mooted thereby. Withdrawal of the rejection is respectfully requested.

#### Rejections Under 35 U.S.C. §103

Claims 1-6, 9-16, and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Chapple-Sokol et al. (U.S. Patent No. 5,612,255). The Applicant respectfully traverses this rejection and requests the Office to consider the following.

(Paragraphs 3, 4, and 12). The Applicant incorporates by reference the discussion previously filed on February 22, 2002. The Applicant respectfully directs the Office's attention to the actual text and fact pattern of *St. Regis* cited by the Office Action. The *St. Regis* case refers to rearrangement of old physical elements in a new combination. The Applicant's claims do not rearrange old physical elements. *St. Regis* is not a pertinent case. Withdrawal of the rejection is respectfully requested.

The statement of Chapple-Sokol that he has a "final structure" is pertinent to the nonobviousness of what is claimed as a whole by the Applicant. Chapple-Sokol therefore

teaches away from further processing. The Office Action apparently chooses to ignore what is taught in Chapple-Sokol: "most 103 rejections are modifications of a final product." (Office Action, page 7). The motivation to modify does not come from *St. Regis* as it is not a pertinent case. Further, the motivation to modify does not come from Chapple-Sokol because he teaches away from what is claimed. The motivation comes only from the Applicant's disclosure. Because the rejection is a single-reference rejection based upon obviousness, because *St. Regis* is not pertinent (the Office Action states a rule of law that cannot be found in *St. Regis*), and because Chapple-Sokol teaches away from what is claimed, withdrawal of the rejections is respectfully requested.

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(Paragraph 14). The Office Action has essentially withdrawn the assertion that "nitride and poly are well known to be equivalent materials." The Office Action admits "[t]hat may well be true" that the etch recipes for the two are very different. (Office Action, page 7). Further, the Office Action poses an open question regarding "how well do they function as masks." (Emphasis omitted). Because this is not a rejection that states the grounds for rejection, withdrawal of the rejection is respectfully requested.

(Paragraph 15) The Applicant has deleted claim 14.

Claims 7-8, 17, 19-28, and 39-47 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chapple-Sokol et al. (U.S. Patent No. 5,612,255) as applied to claims 1-6, 9-16, and 18 above, and further in view of Kendall (Kreidl Memorial Lecture, Oct. 30, 1995). The Applicant respectfully traverses this rejection and requests the Office to consider the following.

(Paragraph 16). The Applicant vigorously disagrees with the conclusions in Paragraph 16. The Office Action states "neither assertion is correct." (Office Action, page 7). The assertions appear to be (1) "Kendall's geometries are vague and indefinite because of the term 'several micrometers high', and (2) 'refers to different processes.'" First, how can the Office Action assert that Kendall's vague statement can be an enabling disclosure of the limitations claimed? It cannot. Second, is the Office Action asserting Kendall's process is that same as what is claimed? The Applicant directs the Office to Kendall where he explicitly states his process as "combining crossed laser beam interferometry with modern photoresists". The

Applicant neither teaches nor suggests such a process. Withdrawal of the rejection is respectfully requested.

(Paragraph 17). The Office Action states “[t]he phrase ‘several micrometers high’ conveys enough information and understanding to be used to anticipate applicant’s invention.” If the Office Action is asserting a new rejection based upon anticipation, the Office is reminded that anticipation requires each and every element of what is claimed must be taught in a single reference. Neither Kendall nor Chapple-Sokol anticipate what is claimed. Withdrawal of the rejection is respectfully requested.

(Paragraph 18). The Applicant only employs what the Office Action asserts as “worst case scenarios” because none other exist in the teaching of Kendall, absent an appeal to the Applicant’s disclosure as a guide to conjure others. Kendall make some vague statements that fail to teach or suggest what is claimed. Kendall’s only quantified ratio is 1:200. Withdrawal of the rejection is respectfully requested.

The Office Action makes a mistaken statement of law that if a critical nature of a particular element is not articulated in the specification, it is assumed to be an admission by the Applicant that it is obvious. The Office Action is mistaken. In determining obviousness, the invention as a whole must be considered; not disjoint pieces by themselves, and the gist of an invention often is not and cannot be a single part of what is claimed. *Loctite Corp. v., Ultraseal Ltd.*, 781 F.2d 861, 228 USPQ 90 (Fed. Cir 1985), *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.*, 796 F.2d 443, 230 USPQ 416 (Fed. Cir. 1986). Withdrawal of the rejection is respectfully requested.

(Paragraph 19). The Office Action states the motivation to reduce geometries but admits that neither Chapple-Sokol nor Kendall teach or suggest this motivation with respect to what is claimed. Since this motivation is not found in the references, Applicant assumes that the Examiner is taking official notice of the missing motivation with respect to what is claimed from an undisclosed source. Applicant respectfully objects to the taking of official notice, and pursuant to M.P.E.P. § 2144.03, the Applicant traverses the assertion of official notice and requests that the Examiner cite a reference that teaches the missing motivation with respect to what is claimed and that can be combined with Chapple-Sokol and Kendall. If the Examiner

cannot cite a reference that teaches the missing motivation with respect to what is claimed, applicant respectfully requests that the Examiner provide an affidavit that describes how the missing motivation with respect to what is claimed is present in the prior art. If the examiner cannot cite a reference or provide an affidavit, the Applicant requests withdrawal of the rejection.

### Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney John Greaves at (801) 487-5051, or if no answer, at (503) 913-3991, or if no answer, at (612) 373-6900, or the below signed attorney to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

BRIAN DOYLE

By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.  
P.O. Box 2938  
Minneapolis, MN 55402  
(612) 349-9592

Date July 22, 2002

By Ann M. McCrackin

Ann M. McCrackin  
Reg. No. 42,858

**CERTIFICATE UNDER 37 CFR 1.8:** The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Box AF, Commissioner of Patents, Washington, D.C. 20231, on this 22 day of July, 2002.

Jane E. Brockschink  
Name

Jane E. Brockschink  
Signature